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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/026,473

12/27/2001

Sunghoe Yoon

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03/18/2005

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WASHINGTON, DC 20006

EXAMINER

DI GRAZIO, JEANNE A

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 03/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EF

<b>Office Action Summary</b>	<b>Application No.</b> 10/026,473	<b>Applicant(s)</b> YOON, SUNGHOE	
	<b>Examiner</b> Jeanne A. Di Grazio	<b>Art Unit</b> 2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on RCE 12/8/2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 10-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8 and 10-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claims***

Claims 1, 3-8 and 10-14 are pending. Claims 1, 6, and 10 have been amended per RCE Amendment of December 8, 2004. Claims 2 and 9 have been cancelled per RCE Amendment of December 8, 2004.

### ***Priority***

Priority to Korean Patent Application No. 2001-25693 (May 11, 2001) is claimed.

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 8, 2004 has been entered.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-8 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (APA)(Figures 1 and 2, conventional liquid crystal display devices) in view of United States Patent 5,682,212 (to Maurer et al.).

As to claim 1 (amended), Applicant's Admitted Prior Art (APA), Figure 1, teaches and discloses the following conventional elements of a reflective liquid crystal display. Specifically, APA has a first substrate (1) having a plurality of switching elements, a first electrode (3, plurality of reflective electrodes), a second substrate (2), a second electrode (5) beneath the second substrate (2) (common electrode, 5), a retardation layer (7) on the second substrate (2), and a polarizer (8) on the retardation layer (7), and a liquid crystal layer (6) between the first electrode (3) and the second electrode (5). A color filter (4) is furthermore formed beneath a second substrate (2).

APA Figure 2 furthermore shows that the color filter (14) is a cholesteric color filter and there is an absorption layer (12) on the lower substrate (11). The cholesteric color filter (14) is located on the absorption layer (12).

APA does not appear to explicitly specify a cholesteric liquid crystal color filter having a plurality of protrusions, a shape, a size and a distribution of the protrusions being controlled to

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make a distribution of reflected light be uniform within a viewing angle range of about 30 degrees upward and downward from a front direction.

Please note that Applicant's Specification equates the above limitation to – uniform luminance regardless of the viewing angle – (Specification at page 14 [0031]).

Maurer teaches and discloses optical elements having image-forming and polarization-selective reflection and that contain cholesteric liquid crystals and the preparation for said elements (Title, entire patent).

Figure 2b of Maurer illustrates a cross section through a plan view of a cholesteric layer (3) that has a plurality of protrusions. The layer is uneven, undulating, and the protrusions may be seen as the crests adjacent a series of concavities (17 and 18).

The reflector as shown in Figure 2b forms an image without affecting transmitted light and functions as a combination color filter, polarizer and lens (Column 2, Lines 30-40). The structure contributes to uniform luminance.

Maurer is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion and motivation to include a cholesteric color filter of plural protrusions to form an image without affecting transmitted light and to function as a combination color filter, polarizer and lens (Column 2, Lines 30-40). The structure contributes to uniform luminance.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify APA in view of Maurer for forming an image without affecting transmitted light and to function as a combination color filter, polarizer and lens (Column 2, Lines 30-40). The structure contributes to uniform luminance.

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As to claim 3, said limitation “a shape, a size and a distribution of the protrusions being controlled to make a distribution of reflected light be decreased gradually within about 20% of the luminance of a front direction” means – uniform luminance – according to Applicant’s Specification. As such, the configuration of Maurer is presumed to meet said limitation for the above noted reasons.

As to claims 4 and 5, APA discloses switching elements as noted.

As to claims 6 (amended)-8 and 10 (amended)-14: Applicant’s recited method steps would have been rendered obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made in view of the device as taught and disclosed by the above cited prior art and as previously applied to the device claims.

Please further note that the protrusions of Maurer are rounded (Applicant’s claim 8).

### ***Response to Arguments***

Applicant's arguments with respect to said claims have been considered but are moot in view of the new ground(s) of rejection.

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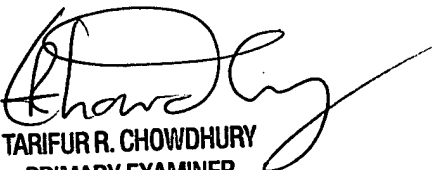
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeanne Andrea Di Grazio  
Patent Examiner  
Art Unit 2871

JDG



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER